

## **REMARKS**

This paper is presented in response to the Final Office Action. Claim 33 is canceled. Claims 1-22 and 34 are pending in the application as a result of the aforementioned cancellation.

Reconsideration of this application is respectfully requested in view of the above amendments to the claims and the following remarks.

### **I. Objections to the Drawings**

The Examiner has objected to the drawings, asserting that “The drawings must show every feature of the invention specified in the claims. Therefore, the ‘the substrate comprises a multi-layer ceramic substrate’ in claim 17 and ‘the substrate comprises a multilayer construction and includes a strip of metal disposed within the substrate’ in claim 33 must be shown or the feature(s) canceled from the claim(s).” Applicant respectfully disagrees and submits that, as discussed below, the objection should be withdrawn.

As to claim 17, Figure 8 of the application clearly illustrates a substrate 800 having a multi-layer construction. Correspondingly, the application states at paragraph [048] that “FIG. 8 illustrates a two-port optical device 810 recessed in a multi-layer substrate 800” (emphasis added). Accordingly, Applicant submits that the objection to the drawings as they concern claim 17 is not well taken and should be withdrawn.

Applicant disagrees with the contentions of the Examiner concerning claim 33, but submits that in light of the cancellation of claim 33 herein, the objection to the drawings as they concern claim 33 should be withdrawn.

### **II. General Considerations**

Applicant notes that the amendments and remarks herein are not intended to, and do not, constitute an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the claim amendments and/or remarks herein are submitted merely to clarify the claimed embodiments from elements purported by the Examiner to be taught by the cited references. Moreover, these claim amendments and remarks, or a lack of remarks, should not be construed as an acquiescence, on the part of the Applicant, as to the purported teachings or purported prior art status of the cited references, nor as to the characterization of the cited references advanced by the Examiner. Accordingly, Applicant reserves the right to challenge the purported teaching and prior art status of the cited references at any appropriate time.

### III. Claim Rejections under 35 U.S.C. § 103(a)

Applicant respectfully notes at the outset that in order to establish a *prima facie* case of obviousness, it is the burden of the Examiner to demonstrate that three criteria are met: first, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success; and third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *See* M.P.E.P. § 2143.

#### 1. **claims 1-8, 13-16 and 18**

The Examiner has rejected claims 1-8, 13-16 and 18 under 35 U.S.C. § 103(a) as being unpatentable over US 6,731,424 to Wu (“*Wu*”), in view of US Pub. 2003/0031430 to Jiang et al. (“*Jiang*”). Applicant respectfully submits that for at least the reasons outlined below, the rejection of the Examiner should be withdrawn.

In rejecting the aforementioned claims, the Examiner concedes that “*Wu* does not disclose that the package includes a cap that forms a hermetic seal around the electro-optic device and the cap includes a first window and a second window.” The Examiner then goes on to assert that “*Jiang* discloses . . . a cap/can (202 or 210) including a light transmitting window or lens . . . mounted on the substrate that forms a hermetic seal around the electro-optic device” and concludes that “It would have been obvious . . . to modify *Wu* to use a cap forming a hermetic seal around the electro-optic device, thus forming a TO packaged electro-optic device such as that taught by *Jiang* in order to seal out contaminants and to provide low-cost smaller package” (emphasis added). The Examiner appears to further clarify this rejection at page 11 of the Office Action, under the ‘*Response to Amendment*’ heading stating that “there is motivation to modify *Wu* to use the TO package such as that taught by *Jiang*, instead of the large package housing, in order to provide optimized hermetic package for both operational reliability and cost” (emphasis added). As discussed in detail below, these assertions by the Examiner are problematic.

#### a. **“smaller” package**

The Examiner asserts that the allegedly obvious modification of the *Wu* device to include the *Jiang* cap would provide a “smaller package.” However, “smaller” is a relative term, and the Examiner has not indicated what the modified *Wu* device would purportedly be smaller than. Moreover, even if the position of the Examiner is that the *Wu* device, as modified, would be smaller than the unmodified *Wu* device, the Examiner has provided no evidence whatsoever that would provide even colorable support for a conclusion that modification of the *Wu* device to include the *Jiang* cap would necessarily result in a decrease in size of the *Wu* device. Thus, the assertion of the Examiner that a “smaller package” would result from the allegedly obvious modification of the *Wu* device is nothing more than unsupported speculation.

**b. “low-cost” package**

The Examiner has also asserted that the allegedly obvious modification of the *Wu* device to include the *Jiang* cap would provide a “low-cost” package. However, the Examiner has provided no evidence whatsoever that would provide even colorable support for a conclusion that modification of the *Wu* device to include the *Jiang* cap would necessarily produce a “low-cost” package. Consequently, the assertion of the Examiner that a “low-cost” package would necessarily result from the allegedly obvious modification of the *Wu* device is nothing more than unsupported speculation. Further, because the definition of “low-cost” in this context is known only to the Examiner, Applicant is unable to provide argumentation on the issue of whether or not the allegedly obvious modification results in a “low-cost” package.

As discussed above, it is not at all clear that the allegedly obvious modification of the *Wu* device advanced by the Examiner would result in a “low-cost” package. Whether or not such modification would result in a “low-cost” package, Applicant submits that it is clear that the proposed modification would, in any event, increase the cost of the *Wu* device. Particularly, inclusion of the *Jiang* “cap” constitutes the addition of another component to the *Wu* device and the cost of that additional component would have to be added to the overall cost of the *Wu* device. Additionally, the various production processes that would likely be involved in installing the *Jiang* “cap” on the *Wu* device would further increase the cost of the *Wu* device.

**c. reliance on personal knowledge in rejection**

In connection with the discussion at III.1.a and III.1.b. above, Applicant notes that it appears that the Examiner is relying on personal knowledge as a basis for rejecting claims 1-8, 13-16 and 18, at least insofar as the Examiner has made the unsupported assertion that the allegedly obvious modification of the *Wu* device would result in a package that is both “smaller” and “low-cost.” Moreover, the Examiner has not identified any references or other materials as being obvious to combine with the teachings of *Wu* or *Jiang*. In view of the foregoing, and pursuant to 37 C.F.R. 1.104(d)(2), Applicant hereby respectfully requests an Examiner affidavit that: (i) specifically identifies any and all reference(s) upon which the obviousness rejection of claims 1-8, 13-16 and 18 is based; and (ii) provides complete details concerning the reasoning and analysis of the Examiner concerning those references as those references are purported to apply to the rejection of claims 1-8, 13-16 and 18.

**d. formation of “TO packaged electro-optic device”**

It was noted earlier that the Examiner has concluded that “It would have been obvious . . . to modify *Wu* to use a cap forming a hermetic seal around the electro-optic device, thus forming a TO packaged electro-optic device such as that taught by *Jiang* in order to seal out contaminants and to provide low-cost smaller package” (emphasis added). However, it is not at all clear that simply

modifying the *Wu* device to include the aforementioned “cap” of *Jiang* will result in the formation of a “TO packaged electro-optic device such as that taught by *Jiang*” as the Examiner has asserted. In this regard, *Jiang* states that “FIGS. 2A and 2B show a TO-packaged receiver 116 and transmitter 118” where “Each receiver 116 and transmitter 118 consists of a base/header 204 and 212 with an exposed flange 218 and 220 onto which a cap/can 202 and 210 is mounted . . .” Paragraph [0023] (emphasis added).

In view of this disclosure in *Jiang*, it would appear that much more extensive modifications to the *Wu* device would have to be undertaken in order to form the “TO-packaged receiver (transmitter)” of *Jiang*. Particularly, *Jiang* recites a “TO packaged electro-optic device” that includes a variety of other components that the Examiner has not asserted would be obvious to combine with the *Wu* device.

In light of the foregoing discussion, Applicant respectfully submits that the assertion of the Examiner that modification of the *Wu* device to include the “cap” disclosed in *Jiang* would thus form “a TO packaged electro-optic device such as that taught by *Jiang*,” is simply incorrect. Moreover, Applicant respectfully notes that any formation of the *Jiang* “TO packaged electro-optic device” as a result of modifications to the *Wu* device would seem to be irrelevant to the analysis of claims 1-8, 13-16 and 18, inasmuch as the burden of the Examiner in establishing a *prima facie* case of obviousness is to demonstrate that that the result of an allegedly obvious combination is the formation of the claimed device, rather than the formation of a device disclosed in one of the cited references.

**e. replacement of *Wu* package housing 210 with *Jiang* “TO package”**

As noted above, the Examiner has stated at page 11 of the Office Action, stating that “there is motivation to modify *Wu* to use the TO package such as that taught by *Jiang*, instead of the large package housing, in order to provide optimized hermetic package for both operational reliability and cost” (emphasis added). However, this statement by the Examiner is different than what the Examiner stated as the basis for the rejection of claims 1-8, 13-16 and 18, inasmuch as the preceding statement suggests that the Examiner believes it would be obvious to replace the large package housing 210 of the *Wu* device with the “TO package” (rather than the ‘cap/can (202 or 210),’ whereas the Examiner has previously stated that “It would have been obvious . . . to modify *Wu* to use a cap forming a hermetic seal around the electro-optic device. . .”).

That is, while the Examiner has stated at page 3 of the Office Action that “It would have been obvious . . . to modify *Wu* to use a cap forming a hermetic seal around the electro-optic device,” the Examiner then states, instead, at page 11 of the Office Action that “there is motivation to modify *Wu* to use the TO package such as that taught by *Jiang*, instead of the large package housing, in order to provide optimized hermetic package for both operational reliability and cost.” It would thus appear that the Examiner’s approach with regard to assessment of the claims is at least somewhat inconsistent. Although the statement at page 11 of the Office Action was not made in connection with a specific rejection of the

claims, but instead appears under the ‘*Response to Amendment*’ heading, Applicant submits the following remarks for the consideration of the Examiner.

Particularly, the Examiner has provided no evidence whatsoever in support of the assertion that replacement of the “large package housing” of *Wu* with the “TO package” purportedly taught by *Jiang* will provide an “optimized hermetic package for both operational reliability and cost.” Moreover, such a modification would, in any event, significantly impair the functionality of the *Wu* device. For example, the “package housing 210” of *Wu* includes apertures 232 and 234 which are configured to receive corresponding input fiber 132 and output fiber 134, respectively (see Figure 21). However, it is not apparent that the *Jiang* “TO package” includes any such feature. Thus, even if the “package housing 210” of *Wu* were replaced with the “TO package” of *Jiang*, as the Examiner alleges would be obvious to do, there would be no way for the resulting device to receive input fiber 132 and output fiber 134.

**f. hermetic seal**

Finally, the Examiner has asserted that “It would have been obvious . . . to modify *Wu* to use a cap forming a hermetic seal around the electro-optic device . . . in order to seal out contaminants” (emphasis added). It was noted by Applicant in an earlier paper that there is no motivation to modify *Wu* in this fashion since *Wu* clearly discloses that the “package housing 210 is preferably hermetically sealed to protect the semiconductor optical amplifier device 136 from the environment.” Column 17, lines 16-18.

In the Office Action under the ‘*Response to Amendment*’ heading, the Examiner has commented on this assertion by Applicant, stating that “As stated by Applicant, *Wu* discloses that the package housing is *preferably* hermetically sealed to protect the semiconductor amplifier device. *Wu* does not state that the package *is* hermetically sealed” (emphasis by Examiner). The Examiner then goes on to state that “*Jiang* discloses the TO package that is smaller and cost less than the package housing of *Wu*. Accordingly, there is motivation to modify *Wu* to use the TO package such as that taught by *Jiang* . . . in order to provide optimized hermetic package for both operational reliability and cost” (emphasis added).

Applicant notes here that the aforementioned rationale advanced by the Examiner is different than that stated by the Examiner in the rejection of the claims at page 3 of the Office Action. Particularly, and as noted elsewhere herein, the Examiner has stated in the rejection that “It would have been obvious . . . to modify *Wu* to use a cap forming a hermetic seal around the electro-optic device, thus forming a TO packaged electro-optic device such as that taught by *Jiang* in order to seal out contaminants and to provide low-cost smaller package” (emphasis added). Thus, the rationale advanced by the Examiner in the actual rejection of the claims makes no mention of operational reliability or cost issues.

It would thus appear that the Examiner’s approach with regard to assessment of the claims is at least somewhat inconsistent. Although the statement at page 11 of the Office Action was not made in

connection with a specific rejection of the claims, but instead appears under the ‘*Response to Amendment*’ heading, Applicant submits the following remarks for the consideration of the Examiner.

Particularly, Applicant notes that the basis for the reliance of the Examiner on *Jiang* appears to be that *Wu* discloses that the package housing 210 is *preferably* hermetically sealed to protect the semiconductor amplifier device (emphasis by Examiner). It further appears that the position of the Examiner is that *Jiang* somehow supplies a motivation or limitation that the Examiner believes is missing from *Wu* and that, according to the Examiner, it would thus be obvious to combine reference teachings. Applicant respectfully disagrees.

While *Wu* does indicate that “The package housing 210 is preferably hermetically sealed” (col. 17, lines 16-17) (emphasis added), which the Examiner apparently interprets as meaning that in some instances, the package housing 210 is not hermetically sealed, it nonetheless seems clear that one of skill in the art need look no further than *Wu* to find the requisite motivation to hermetically seal the package, inasmuch as the fact that the package housing 210 can be hermetically sealed is already plainly stated in *Wu*. Moreover, it was noted at III.1.e. above that modification of the *Wu* device with the “cap” of *Jiang* presents a variety of problems. In light of the foregoing, it is unclear why one of skill in the art would be motivated to use the teachings of *Jiang* to modify the *Wu* device.

**g. conclusion**

As discussed at III.1.a.- III.1.f. above, Applicant submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to claims 1-8, 13-16 and 18, at least because there is no motivation to combine reference teachings, and because there is no reasonable expectation that the allegedly obvious combination would be successful. Accordingly, Applicant submits that the rejection of claims 1-8, 13-16 and 18 has been overcome and should be withdrawn.

**2. claims 9-10, 11-12, 17, 19-22, 33 and 34**

The Examiner has rejected claims 9-10, 11-12, 17, 19-22, 33 and 34, based upon various allegedly obvious combinations of *Jiang*, US 6,416,238 to Gilliland, US Pub. 2004/0022476 to Kirkpatrick, US 5,848,210 to Kimura, and US 6,381,066 to Korn. In part, the Examiner has asserted that all of the aforementioned claims are unpatentable over *Wu* in view of *Jiang* as applied to claim 1. As discussed above however, the Examiner has failed to establish that it would be obvious to combine the teachings of *Wu* and *Jiang*. Inasmuch as the rejection of claims 9-10, 11-12, 17, 19-22, 33 and 34 relies on the position of the Examiner with regard to the teachings of *Wu* and *Jiang*, that rejection lacks an adequate foundation.

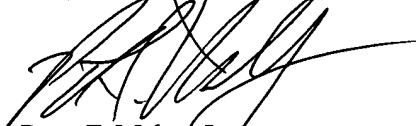
In view of the foregoing, Applicant submits that the rejection of claims 9-10, 11-12, 17, 19-22 and 34 should be withdrawn. As claim 33 has been canceled herein, the rejection of the claim has been rendered moot and should thus be withdrawn as well.

**CONCLUSION**

In view of the remarks and amendments submitted herein, Applicant respectfully submits that each of the pending claims 1-22 and 34 is now in condition for allowance. Therefore, reconsideration of the rejections is requested and allowance of such claims is respectfully solicited. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate the same with the undersigned attorney.

Dated this 9<sup>th</sup> day of June, 2005.

Respectfully submitted,



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